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Behavior Change

Lessons Learned

Environmental Health Project

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Until recently, behavior change has not been given the importance it is due in environmental health programs. For example, water and sanitation programs, even those with health goals, have all too frequently focused mainly on provision of hardware—pumps, pipes, latrines—and the most common indicator for such programs has been the number of people with *access*.

However, research has shown that it is correct *use* of water and sanitation facilities that yields the greatest health impact. Access alone may bring little or no health impact. For example, many people have access to a latrine but do not use it for practical and cultural reasons that were not taken into consideration when the latrine was built. For greatest health impact, a number of behaviors must be adopted regarding latrine use: all members of the family, including children, must use the latrine at all times, they must wash their hands after latrine use, and the latrine must be kept clean and functioning. In addition, the feces of children too young to use a latrine must be disposed of properly.

In its efforts to prevent key childhood diseases, the Environmental Health Project (EHP) advocates the concept of "behavior first." In other words, *first* find out what behaviors are associated with disease transmission in the target area and then identify strategies for bringing about the needed changes. The strategies may include—but are not limited to—introduction of new technologies. Communication, training, policy change, and community organization are also strategies for behavior change. Technology is not *the* solution; it is *part* of the solution.

EHP Goal: Increase the capacity of local NGOs and communities to identify high-risk environmental health-related behaviors and to design and implement behavioral change programs to achieve a health impact.

Behavior change to prevent environmentally related diseases takes place in both the public or community domain and the private or domestic domain. Private-domain behaviors are actions that individuals or families themselves structure and organize, such as washing hands; community behaviors are collective actions that call for organizing people to work together, such as maintaining a community pump or keeping a common area clean. To facilitate both individual and collective action, national, regional, and / or local government decision makers may need to provide resources and support.

A number of EHP activities have achieved behavior change results. The following representative list shows the wide range of behaviors targeted:

- Montego Bay, Jamaica: proper excreta disposal;
- The Cono Norte area of Greater Lima, Peru: collection and proper disposal of solid waste;
- The Santa Cruz area of Bolivia: water storage / handling and excreta disposal;
- Two secondary cities in Tunisia: maintenance of common areas in neighborhoods (e.g., improving

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trash collection, drainage, maintaining latrines, etc.);
- Cité Soleil, Haiti: community maintenance and protection of the water distribution network;
- Zlatna, Romania: protecting children from exposure to environmental lead; and
- Eastern Province in Zambia: using insecticide-treated bednets.

In all cases, technologies were involved, from simple ones, such as water storage containers, to more complex, such as water system construction. The technologies were one element in making the new behaviors possible.

The substantial results that can be achieved from behavioral change efforts are illustrated in post-project evaluations. For example, in Ecuadorian provinces where high rates of cholera persisted despite government information campaigns, EHP worked from 1994 to 1995 with USAID / Quito and the Ministry of Health to identify behaviors and beliefs that increase the risk of cholera. Regional and community health teams were formed and trained to analyze local beliefs and behaviors in indigenous communities, and, in conjunction with community members, to design suitable interventions. The 1996 final evaluation found a 34% increase in the number of families treating their drinking water, a 94% increase in those protecting drinking water, and a 27% increase in those washing their hands after defecation, compared with baseline information—to mention just a few results. The number of cholera cases dropped dramatically in the project area, compared with contiguous areas.

In the Santa Cruz area of Bolivia, where previous USAID funding of water and sanitation infrastructure failed to bring about the anticipated reductions in child diarrheal disease, the USAID mission and EHP mobilized local NGO groups and the Child Health Unit of the Ministry of Health to take a community-based approach to prevention of diarrheal disease. Baseline household morbidity data revealed that the actual burden of child diarrheal disease was an order of magnitude greater than what clinic data indicated. Furthermore, child diarrheal disease prevalence was highly correlated with poor hygiene behaviors and lack of knowledge of the causes of diarrhea among mother and caretakers, not with water source or type of sanitation. Community-initiated interventions have produced significant improvements in household hygiene behaviors and a 38% reduction in child diarrheal disease prevalence.

In July 1998, EHP convened a Technical Advisory Group (TAG) on behavior change to review USAID / EHP experiences and assist EHP to identify critical environmental health behaviors at the community and household level and to develop a framework for interventions to change them. EHP developed the lessons learned on this topic through work connected with the TAG and subsequent Applied Study 10: "Behavior First: A Minimum Package of Preventive Behaviors to Improve Child Health," which included an extensive review of the professional literature on the effectiveness of behavior change to prevent diarrheal disease and malaria.

LESSONS LEARNED

Lesson One: *Development of a manageable "package" of environmental health behavioral interventions helps facilitate the integration of environmental health in child health programs.*

USAID and others have developed a number of standard *preventive* interventions to improve child health and survival. These include breastfeeding, improved weaning practices, micronutrients, growth monitoring, and immunization. However, *primary preventive interventions*—those that interrupt disease transmission routes—have received less emphasis. Such preventive interventions might be integrated in child health programs if a managable number of key behaviors could be identified, ones that were feasible, effective, and for which there are readily measurable indicators. For example, the household and community component of the Integrated Management of Childhood Illness (IMCI) approach recently developed by UNICEF, WHO, USAID, and others includes hygiene-related behaviors.

EHP, with the assistance of the TAG mentioned above, has moved along the process of developing a primary prevention package by identifying four key behaviors that should be targeted. EHP has also developed some guidance in designing interventions to promote these behaviors within the context of child health programs. There are four critical behaviors in the minimum package:

(1) safely dispose of human feces—especially children's feces,
(2) consume safe water,
(3) consume safe food, and
(4) protect self and family from mosquitoes.

Each of these behaviors is in reality a cluster of related behaviors. For example, the following individual and community behaviors may be involved in consuming safe water: storing clean water safely; obtaining drinking / cooking water from the least contaminated source; and maintaining a community water supply.

There is strong evidence in the professional literature of the impact of the four behaviors on preventing major childhood diseases. This evidence is summarized in "Behavior First," the report mentioned above. Based on this evidence, it would be reasonable to expect a 25-35% decrease in diarrheal disease from interventions promoting the first three behaviors. The fourth

behavior, which is aimed at the prevention of malaria, focuses principally on the use of insecticide-treated bednets. When used consistently in areas where they are effective in providing a barrier, bednets have been shown to reduce the incidence of malaria infections by approximately 50%.

Indicators developed for the four behaviors suggest the components of an effective program to promote the behavior. For example, suggested indicators for consuming safe food are as follows:

- Percent of infants six months and under that are exclusively breastfed.
- Proportion of households where (i) the mother reports washing her hands before preparing or serving food or feeding children, (ii) food is eaten within three hours of cooking, and (iii) cups and spoons rather than bottles are used to feed infants and small children.

This minimum package of environmental health behaviors is designed to assist USAID and others to strengthen the preventive side of child health programs.

Lesson Two: *Achieving and sustaining behavioral change requires both social marketing and community capacity-building techniques.*

Social marketing applies the principles of modern marketing, modified by the application of the social sciences, to enhance the well-being of individuals and society. It combines mass and interpersonal communication and counseling as well as training, policy change, and product and service-delivery activities needed to encourage and support the adoption of desirable new practices. *Community capacity building* employs a range of training, mentoring, and organizational and other support activities to enable community groups to undertake collective activities. The focus is on activities in the public domain that cannot be achieved by individuals alone.

Methodologies for environmental health behavior change through community action have been developed by a number of organizations. Two examples are the CIMEP process (Community Involvement in the Management of Environmental Pollution), developed by EHP, and PHAST (Participatory Hygiene and Sanitation Transformation), developed jointly by the World Health Organization, the U.N. Development Program, and the Swedish International Development Agency. The work of CIMEP is described in "Community Involvement: Lessons Learned," in this series of leaflets.

Behavior change in environmental health may combine elements of both social marketing and community capacity building. The disciplined and professional approach to communication of social marketing is needed for prioritizing, motivating, and facilitating key behavior changes in the private domain, creating demand for infrastructure to complement behavior change, and encouraging individual participation in community activities. At the same time, community capacity building, including skill building, assessment, planning, identifying local support groups, and implementation of community projects, is essential for behavior change in the public domain.

Ideally, programs should build a strategy that employs both methods on parallel tracks so that they become integrated and mutually supportive during implementation. The social marketing activities would cover but not be restricted to the same communities going through community capacity building.

The starting point for both social marketing and community capacity building is a crucial formative research or information-gathering phase to gain an understanding of local disease transmission factors and environmental conditions, high-risk behaviors that should be targeted for change, technologies in use, community preferences, the institutional landscape, attitudinal and other barriers, and the most effective ways to motivate change.

All efforts should ensure that there is both community and stakeholder involvement in the process. For example, EHP has used community-based information gathering and mapping as an input to policy roundtables to focus attention on the problems of greatest concern.

Lesson Three: *To assure their success and sustainability, behavior change efforts need an enabling environment of legislative, financial, and technical support.*

Behavior change cannot take place in an institutional vacuum. An enabling, supportive institutional environment must be created for individual or

Changing behavior involves more than didactic messages. This drawing was used in hygiene education materials produced in Ghana, one of the few countries with a National Strategy for Hygiene Education. (Courtesy IRC.)

community change to be sustained. Varied types of support are needed:

- Legislative / regulatory—for example, reducing tariffs on imported bednets to make them more affordable,
- Financial—providing credit for construction of sanitation facilities,
- Management, supply, logistics—for example, training community groups in operations and maintenance of community water supplies.

Activities aimed at increasing the capacity of key stakeholders are often made a part of a behavior change program. These may include training government officials who interact with communities or setting up regular meetings with key decision makers from relevant agencies to address obstacles—institutional, logistic, and financial—that emerge during implementation. To provide the necessary support, governmental and nongovernmental organizations may need to adopt new attitudes and practices to reinforce family and community actions and to improve their prospects for sustainability.

OUTSTANDING ISSUES

Key behaviors for prevention of acute respiratory infection (ARI) cannot be developed until further research has been carried out. The four environmental health behaviors in the minimum package do not include any for the prevention of acute respiratory infections (ARI). This is significant because ARI is now the leading killer of children five and under.

Indoor air pollution from particulate matter emitted during combustion of biomass fuels such as wood and dung in non-vented cooking and heating stoves is highly associated with ARI in children, who often spend long hours with their mothers in poorly ventilated areas where particulate concentrations can be extremely high.

A number of behaviors have been proposed for the prevention of ARI: substitution of cleaner fuels, use of less polluting stoves, improvement in ventilation, and keeping young children away from smokey fires. However, the efficacy and effectiveness of these interventions have not been tested. It might be found, for example, that some interventions could reduce concentrations of particulate matter but not enough to make an appreciable difference to health.

More work needs to be done to integrate the minimum package of environmental health behaviors into Child Survival programs. EHP work in behavioral change has concentrated on developing a community-based process for behavioral change efforts, carrying out about a dozen projects in which behavioral change was a key component, and promoting a minimum package of environmental health behaviors. Additional activities should build on these accomplishments. There is a need to develop specific implementation options for each of the four behaviors.

A start has been made in this process by identifying key implementation issues; these are discussed in "Behavior First" and in "Preventing Child Diarrheal Disease: Options for Action," a booklet recently published by EHP. The most important of these issues is the need for guidance in blending social marketing and community capacity-building approaches and in striking the right balance between community decision making and the need for objective, rigorous assessments of behavioral risk factors, like those described in Applied Study 9: "The Environment and Children's Health: A Practical Guide for Measuring Impacts of Environmental Health Interventions," another recent EHP publication. More also needs to be done in developing ways to scale up the relatively modest projects implemented to date. Finally, follow-up evaluations of key projects should be carried out to test the sustainability of health-enhancing behaviors.

—Michael Favin, the Manoff Group, and Diane Bendahmane, EHP Technical Director for Information Services

Reports Available from EHP

"Addressing Environmental Health Issues in the Peri-Urban Context: Lessons Learned from CIMEP Tunisia" (EHP A.R. 24).

"Behavior First: A Minimum Package of Environmental Health Behaviors to Improve Child Health" (EHP A.S. 10).

"Cholera Prevention In Ecuador: Community-Based Approaches for Behavior Change" (EHP A.R. 19).

"Community and Household Assessment of Malaria Prevention in Eastern Province, Zambia: Summary of Findings on Knowledge, Attitudes, Behaviors, and Practices" (EHP A.R. 51).

"The Environment and Children's Health: A Practical Guide for Measuring the Impact of Environmental Health Interventions" (EHP A.S. 9).

"Evaluation of the Jamaica Urban Environmental Program for On-Site Sanitation" (EHP A.R. 35).

"Indicators for Programs to Prevent Diarrheal Disease, Malaria, and Acute Respiratory Infections" (EHP A.R. 46).

"Monitoring the Effect of Behavior Change Activities on Cholera: A Review in Chimborazo and Cotopaxi, Ecuador" (EHP A.R. 25).

"Preventing Child Diarrheal Disease: Options for Action" (EHP booklet).

"Prevention: Environmental Health Interventions to Sustain Child Survival" (EHP A.S. 3).

To request technical assistance or to find out more about EHP, contact:
Dr. John Borrazzo, Environmental Health Advisor, Office of Health and Nutrition, RRB 3.07-026, Bureau for Global Programs, Field Support and Research, U.S. Agency for International Development, Washington, D.C. 20523-3700
Tel: (202) 712-4816 • Fax: (202) 216-3702 • E-mail: jborrazzo@usaid.gov